

# **Martian Spiders as feasible water-driven erosive structures.**

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Recent data from space missions reveal that there are on-going climatic changes and erosive processes on Mars that continuously modify its geomorphology. We investigate the seasonal dynamics of Inca City, a representative area at high southern latitude undergoing seasonal processes. Odyssey and Mars Express observations demonstrated the existence of water in the South Pole, which together with measures on the chemistry of ancient water masses carried out by the Opportunity rover strongly support the existence of underground salty water in the area. Analysis of data provided by the Thermal Emission Imaging System (THEMIS) on board Mars Odyssey yield local temperatures up to 258 K, notably higher than expected in those regions and compatible with the seasonal presence of brines. By integrating visual information from Mars Orbiter Camera (MOC) on board Mars Global Surveyor, climatic cycles from a Mars' General Circulation Model, and the previous evidence on the presence of water, we show that a number of erosive features identified in Inca City, among them spiders, may result from the seasonal melting of aqueous salty solutions.